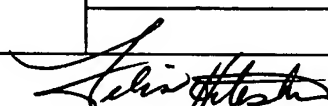


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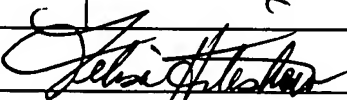
Form PTO-1449 (REV. 1/06)		US Dept. of Commerce PATENT & TRADEMARK OFFICE		ATTY DOCKET NO. 126790		APPLICATION NO. National Stage Patent Application of PCT/JP2004/007619	
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Examiner Initials	Cite No.	Document Number	Date	Name			
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Examiner Initials	Cite No.	Document Number	Date	Country	With English Abstract	With English Translation	
FH.	1	WO 02/00970 A1	01/03/2002	WIPO	X	—	
FH.	2	JP 2002-137987 A	05/14/2002	JAPAN	X	X	
FH.	3	JP 2004-338979 A	12/02/2004	JAPAN	X	X	
OTHER DOCUMENTS							
Examiner Initials	Cite No.	(Including Author, Title, Date, Pertinent Pages, etc.)					
FH.	4	V.V. VORONKOV, "The Mechanism of Swirl Defects Formation in Silicon," <i>Journal of Crystal Growth</i> , 59 (1982), pp. 625-643					
EXAMINER						DATE CONSIDERED 6/6/2007	
Examiner: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

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F.H.	1	WO 02/00970 A1	01/03/2002	WIPO	X	—	
F.H.	2	JP 2002-137987 A	05/14/2002	JAPAN	X	X	
F.H.	3	JP 2004-338979 A	12/02/2004	JAPAN	X	X	
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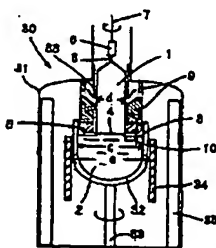
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各PCTガゼットの巻頭に掲載されている「コードと略語  
のガイダンスノート」を参照。

(54) Title: METHOD FOR PRODUCING SILICON SINGLE CRYSTAL

(54) 発明の名称: シリコン単結晶の製造方法



(57) Abstract: A method for producing a silicon single crystal by the CZ method, characterized in that an inner diameter (c) of a crucible (32) having a silicon raw material therein is 2 to 2.5 times an intended diameter (d) of the silicon single crystal (1) to be produced, and the silicon single crystal is pulled up in a manner wherein the minimum value of a ratio (V/Gs) in the direction of diameter of a velocity (V) of pulling up to a temperature gradient (Gs) in the interface between solid and liquid in the crystal is 0.3 mm<sup>2</sup>/K ? min or more. The method allows the decrease of the temperature gradient (G1) in a melt, the increase of the maximum velocity of pulling up, and the suppression of occurrence of an OSF ring, by the use of the ordinary CZ method, with ease and simplicity, and at a low cost.

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